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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/051,906	01/16/2002	Chao-Yuan Su	67,200-630	1799

7590 06/22/2004

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EXAMINER

RUGGLES, JOHN S

ART UNIT	PAPER NUMBER
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1756

DATE MAILED: 06/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Advisory Action**

Application No.

10/051,906

Applicant(s)

SU ET AL.

Examiner

John Ruggles

Art Unit

1756

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 03 June 2004 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE. Therefore, further action by the applicant is required to avoid abandonment of this application. A proper reply to a final rejection under 37 CFR 1.113 may only be either: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114.

**PERIOD FOR REPLY** [check either a) or b)]

- a) ☐ The period for reply expires \_\_\_\_\_ months from the mailing date of the final rejection.
- b) ☒ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection. ONLY CHECK THIS BOX WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

1. ☐ A Notice of Appeal was filed on \_\_\_\_\_. Appellant's Brief must be filed within the period set forth in 37 CFR 1.192(a), or any extension thereof (37 CFR 1.191(d)), to avoid dismissal of the appeal.
2. ☒ The proposed amendment(s) will not be entered because:
- (a) ☒ they raise new issues that would require further consideration and/or search (see NOTE below);
  - (b) ☐ they raise the issue of new matter (see Note below);
  - (c) ☐ they are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
  - (d) ☐ they present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: See Continuation Sheet.

3. ☒ Applicant's reply has overcome the following rejection(s): See Continuation Sheet.
4. ☐ Newly proposed or amended claim(s) \_\_\_\_\_ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
5. ☒ The a) ☐ affidavit, b) ☐ exhibit, or c) ☒ request for reconsideration has been considered but does NOT place the application in condition for allowance because: See Continuation Sheet.
6. ☐ The affidavit or exhibit will NOT be considered because it is not directed SOLELY to issues which were newly raised by the Examiner in the final rejection.
7. ☒ For purposes of Appeal, the proposed amendment(s) a) ☒ will not be entered or b) ☐ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.

The status of the claim(s) is (or will be) as follows:


Claim(s) allowed: \_\_\_\_\_.

Claim(s) objected to: 1-4,8,10-19 and 21-24.

Claim(s) rejected: 1-4,8,10-19 and 21-24.

Claim(s) withdrawn from consideration: \_\_\_\_\_.

8. ☒ The drawing correction filed on 26 January 2004 is a) ☒ approved or b) ☐ disapproved by the Examiner.
9. ☐ Note the attached Information Disclosure Statement(s) (PTO-1449) Paper No(s). \_\_\_\_\_.
10. ☒ Other: See Continuation Sheet

  
John Ruggles  
Examiner  
Art Unit 1756

Continuation of 2. NOTE: The amendment of claim 11 would raise a new rejection under the second paragraph of 35 USC 112, because the antecedent basis for "the solder" in line 18 would then be unclear (e.g., Applicants must specify whether this phrase was intended to mean the --solder ball-- found in line 2, the --solder bump-- found in line 5, the --solder column-- found in line 14, etc.). Also, the "forming...to form" in claim 11 line 18 would also raise a new objection as being repetitive.

Continuation of 3. Applicants' reply would overcome the following rejection(s): (1) the previous exemplified objections to the specification would be overcome by amended paragraphs 008, 0026, and 0028; and further changes found in amended paragraphs 005, 0034, and 0035 would also be acceptable if resubmitted in the correct format as indicated below. However, further objections still remain to the specification as currently amended (e.g., (a) in paragraph 0027 at lines 2-3, the phrase "which is representative cross-sectional side view representation" is repetitive and should be changed to --which is a representative cross-sectional side view--, (b) in paragraph 0030 at lines 11-12, "about greater than (equal or greater than)" should be corrected to --about greater than (equal to or greater than)--, etc.). (2) The previous objections to the claims would also be overcome by the proposed amendments thereto, but at least amended claim 1 would then have to be objected to because "forming a patterned photoresist layer on the protective layer the patterned photoresist layer comprising" should have been changed to --forming a patterned photoresist layer on the protective layer, the patterned photoresist layer comprising--. Another objection is also noted in currently amended claim 16, because "the UBM layer selected from the group" should have been corrected to --the UBM layer is selected from the group--. A further new objection to claim 11 would also be raised as pointed out above (see item 2). (3) The previous rejections under the first and second paragraphs of 35 USC 112 would also be overcome by currently proposed amendments to the claims. However, a new rejection under the second paragraph of 35 USC 112 would also be raised by these amendments, as pointed out above (see item 2).

Continuation of 5. does NOT place the application in condition for allowance because: at least for the following reason: the amendments have not been entered because they raise new issues (see item 3) and also because they have not been presented in the proper format as indicated below (see item 10). Applicants' arguments on pages 17-18 about the asserted differences between Costas (as a single reference taken alone) and the instant invention are not convincing. This is because the previous obviousness rejection does not rely on Costas alone, but rather on Costas in view of Applicants' admitted PRIOR ART (from instant Figures 1A-1E as described in instant paragraphs 006-007, which has been appropriately applied in accordance with MPEP 2129 [R-1], in contrast to Applicants' argument on page 19) and further in view of Lee, for the reasons previously set forth.

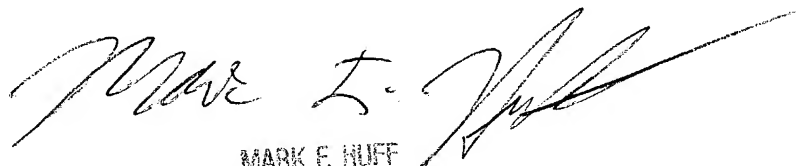
Applicants' assert on page 17 in regard to Costas that no support was given for the equivalency of forming solder columns through a patterned resist stencil either (1) of photosensitive BCB or (2) with underlying non-photosensitive BCB, which has been patterned through the resist stencil. As previously stated, support can be found in Costas (1) at column 4 lines 12-14 for the preference of using photosensitive BCB and (2) the use of underlying non-photosensitive BCB can be gleaned from a comparison of Figures 4 and 5, which show removal of BCB over the bond pads along with RIE of overlying layer 401 through a patterned resist. Lee shows the use of patterned BCB to mask an area for connection of a solder ball to underlying metal, shows the inherent high glass transition temperature of BCB to be about 350 degrees C, and even specifically states that BCB is more stable in packaging processes performed at high temperatures (column 3 lines 45-60). When taken together, it is still believed that the previously cited prior art would have rendered the instantly claimed invention obvious to one of ordinary skill in the art at the time of the invention.

In response to Applicants' other arguments on pages 19-26, the fact that Applicants have recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

Continuation of 10. Other: Applicants are reminded that amended changes must be indicated by underlining all additions and striking out or DOUBLE bracketing all deletions (e.g., "[1] 24B" should be corrected to --[[1]]24B-- in line 17 of amended specification paragraph 0028, etc.) in accordance with the revised amendment practice as published on 30 June 2003 in the Federal Register (68 Fed. Reg. 38611), a copy of which is attached to this Office action.



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